REMARKS

Claims 1-8, 10-19, and 26 appear in this application for the Examiner's review and consideration, of which claims 1 and 19 are presently amended, and claim 26 is newly added. The recitation of claim 9 has now been added to both independent claims 1 and 19, and claim 9 has thus been cancelled without prejudice. Claims 20-25 have been cancelled without prejudice as they are drawn to a non-elected invention, and Applicants reserve the right to a divisional application directed thereto or to other unclaimed subject matter of the application.

The amendment to claim 1, clarifying that the implantation of the atomic species is done to a preselected depth that is substantially free of foreign atomic species, is fully supported in the originally filed application, such as in the first paragraph of page 6 of the specification and in the drawings. The amendment to claim 19 reciting that the entire transfer layer is rendered semi-insulating, as well as claim 26 are fully supported in the originally filed specification, claims, and drawings, for example in the drawings, which show the diffusion of the foreign species over the entire surface, *i.e.*, parallel to the bonding surface and weakened zone. Also, in the preferred embodiment described, substantially the entire transfer layer is rendered semi-insulating. The specification has also been amended to provide specific antecedent basis for these claims, and this amendment is also similarly supported in the original filing.

In the Office Action, claims 1-4, 6-8, 13, 14, 18, and 19 were rejected under 35 U.S.C. § 103(a) over Aspar in view of Koh, and claims 5, 9-12, and 17 were rejected un section 103(a) over these references and further in view of Applicant's allegedly admitted prior art. As indicated above, claims 1 and 19 now include the original recitation of claim 9.

Claims 1 and 19 relate to a method in which atomic species are implanted into a region that is substantially free of foreign atomic species to form a weakened zone. A support is bonded to the donor wafer, and a transfer layer of the donor wafer is detached at the weakened zone. Foreign species are diffused into the transfer layer to render that layer semi-insulating. Claim 19 further states that the entire transfer layer is rendered semi-insulating by the diffusion, and claim 26, which depends from claim 1, recites that the diffusion takes place over the surface of substantially the entire transfer layer.

One the other hand, Aspar and Koh do not teach or suggest diffusing any foreign species to render any layer semi-insulating. To the contrary, they instead teach forming electrical or optical components within a layer by implantation doping. *See, e.g.,* Aspar [0068]. These components are each produced in a small portion of a layer and the species are only implanted very locally; thus, the teaching of these references would not be considered to suggest rendering the layer itself semi-insulating under the definitions of claims 1, 19, or 26.

Furthermore, the doping of Aspar and Koh by implantation is not interchangeable with the claimed foreign species diffusion. As explained on page 3, starting at line 18 of the present application, implantation of the foreign species can cause irreversible damage. Consequently, the diffusion provides surprising advantages over implantation techniques.

With regard to the prior art described in the specification, obtaining a semi-insulating bulk substrate it known to be obtained wither directly during the formation of the substrate (*see* Application paragraph at page 3, line 4), or by diffusion of foreign species typically over the whole thickness of the thick bulk substrate (*see* Application paragraphs at page 3, lines 21 and 26). First, there is no motivation provided to combine the localized doping of Aspar and Koh with a teaching of modifying a whole bulk substrate, and any combination would still fall short of the claimed invention.

Second, one of ordinary skill at most would have attempted to obtain a semi-insulating layer by using a semi-insulating donor wafer. There is no suggestion or motivation to obtain a non-semi-insulating material and treat it to render it semi-insulating in combination with transferring a layer, since it is well know that the semi-insulating donor material is readily available on the market, and using a semi-insulating donor wafer would be less complex than having to add a diffusion step, which would increase the complexity. Also, it is typically understood that foreign species, like dopants and impurities, in the donor wafer can help modify the splitting kinetics of the detachment at a weakened zone created by implanted atomic species, (*see* Application paragraph at page 5, line 25), and one of ordinary skill would have been motivated to implant the atomic species into a region that contains the foreign species, which is the opposite of what is claimed.

Additionally, there is no guidance in the prior art on how the diffusion step could be successfully accomplished when transferring by implanting atomic species to form a region of weakness to enable detachment. In fact, as explained in the specification

(*see* Application paragraph at page 3, line 29), the inventors have observed that that there is an undesirable interaction between the species that renders the material semi-insulating and the implanted species that produce the weakened zone. This makes it much more difficult or impossible to perform a reliable transfer. None of the prior art even hints at this problem. The present invention provides the surprising benefit that it allows the semi-insulating layer to be transferred while reducing or eliminating compromises to the reliability or quality of the step of transferring the layer to the support. Consequently, claims 1, 19, and 26 are not taught or suggested by the references of record, and there is no motivation to make the combination of teachings that would be required.

In view of the foregoing, applicants believe that the entire application is now in condition for allowance, early notice of which would be appreciated. Should the Examiner not agree, then a personal or telephonic interview is respectfully requested to discuss any remaining issues in an effort to expedite the allowance of this application.

Respectfully submitted,

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